

IMAGING AND DIAGNOSTIC TESTING

COST-EFFECTIVENESS OF ALTERNATIVE DIAGNOSTIC EVALUATION PATHWAYS FOR INDIVIDUALS WITH STABLE CHEST PAIN SYNDROME WITHOUT KNOWN CORONARY ARTERY DISEASE

ACC Poster Contributions
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Background: Cost-effectiveness of diagnosis of chest pain in patients without known coronary artery disease is presently unknown.

Methods: We performed a cost effectiveness analysis comparing diagnostic algorithms that employed use of exercise treadmill testing (ETT), stress echo (ECHO), myocardial perfusion scintigraphy (MPS), coronary CT angiography (CCTA), and invasive coronary angiography (ICA). Additional testing was permitted for initial equivocal results; ICA was performed when a test was (+) or when 2 tests were equivocal. Stress tests were followed by anatomic evaluation (i.e., CCTA or ICA) rather than additional stress tests. These criteria resulted in 12 pathways: 1) ETT-ECHO-ICA; 2) ETT-CCTA-ICA; 3) ETT-MPS-ICA; 4) ETT-ICA; 5) ECHO-CCTA-ICA; 6) CCTA-ECHO-ICA; 7) CCTA-MPS-ICA; 8) ECHO-ICA; 9) CCTA-ICA; 10) MPS-CCTA-ICA; 11) MPS-ICA; 12) ICA. Analyses were conducted from a societal perspective. The base case was a 55 y/o man with a 30% pre-test likelihood of CAD. Incremental cost effectiveness ratio (ICER) was calculated by cost per quality adjusted life years (QALY) saved.

Results: Results are listed in Table 1. ETT-CCTA-ICA and CCTA-ECHO-ICA strategies demonstrated ICERs of \$20,701, which compared favorably to the least expensive ETT-ECHO-ICA strategy. Strategies which did not use additional testing for equivocal results were more expensive and less effective.

Conclusions: Using \$50,000 willingness-to-pay for QALY, ETT-CCTA-ICA or CCTA-ECHO-ICA are cost-effective.

Strategy	Cost(\$)	Incremental Cost(\$)	Effectiveness (QALY)	Incremental effectiveness (QALY)	ICER
ETT-ECHO-ICA	\$15,581.37		15.7814		
ETT-CCTA-ICA	\$15,599.53	\$18.16	15.7822	0.0009	\$20,701
ETT-MPS-ICA	\$15,801.92	\$202.39	15.7811	-0.0011	(Dominated)
ECHO-CCTA-ICA	\$15,814.10	\$214.57	15.785	0.0027	\$78,166
CCTA-ECHO-ICA	\$15,862.49	\$48.39	15.7873	0.0023	\$20,701
ECHO-ICA	\$15,903.02	\$40.53	15.7844	-0.0029	(Dominated)
CCTA-MPS-ICA	\$15,906.50	\$44.02	15.7873	-0.0001	(Dominated)
CCTA-ICA	\$15,955.03	\$92.54	15.7869	-0.0004	(Dominated)
ETT-ICA	\$16,045.05	\$182.56	15.7793	-0.0081	(Dominated)
MPS-CCTA-ICA	\$16,445.68	\$583.19	15.7843	-0.0031	(Dominated)
MPS-ICA	\$16,534.60	\$672.11	15.7837	-0.0037	(Dominated)
ICA	\$17,230.83	\$1,368.34	15.7784	-0.009	(Dominated)